

UNITED STATES PATENT APPLICATION

OF

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FOR

WASHING MACHINE PEDESTAL

[0001] This application claims the benefit of the Korean Application No. P2003-0036242 filed on June 5, 2003, which is hereby incorporated by reference.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The present invention relates to washing machines, and more particularly, to a pedestal for a washing machine fastening of the washing machine thereto is easy.

Background of the Related Art

[0003] In general, the washing machine washes laundry by using washing, rinsing, and spinning cycles to remove contaminants stuck to clothes and beddings in a drum rotated inside of a tub, together with actions of detergent and water in the tub.

[0004] In the washing machines, there are a top loading type washing machine which has a laundry opening in a top part of the washing machine, and a front loading type washing machine which has a laundry opening in a front part of the washing machine.

[0005] The front loading type washing machine is, in general, called as a drum type washing machine, which, as described, has a laundry opening in a front part of the washing machine.

[0006] However, since the drum type washing machine has the laundry opening formed in a low part, to require the user to bend forward for introduction/taking laundry into/out of the washing machine. For eliminating the inconvenience, the washing machine pedestal has been developed and used placed under the washing machine for supporting the washing machine to a required height. FIG. 1 illustrates a related art washing machine and the washing machine pedestal.

[0007] Referring to FIG. 1, the related art washing machine is provided with a hexahedral cabinet 11 forming an outer appearance of the washing machine, a washing tub in

the cabinet, and various electronic components (not shown). There is a pedestal 20 under the washing machine 10 for positioning the laundry opening 13 of the washing machine to a required height.

[0008] The pedestal 20 is provided with a body 21 for seating the washing machine thereon, and a drawer 22 in a front part of the body 21 for keeping various things therein, such as detergent and tool for maintenance of the washing machine.

[0009] The pedestal has a top panel 21a in contact with a bottom of the washing machine directly, both of which are fastened with screws (not shown) passed through from an underside of the top panel 21a toward the bottom of the cabinet.

[0010] As a fastening structure of the washing machine 10 and the pedestal 20 is such, workers are required to lay down the washing machine on a floor, tilt the pedestal, fasten the pedestal to the bottom of the washing machine, brings the washing machine having the pedestal fastened thereto into a stand position, and install the washing machine on a desired place, that requires a long time, and is liable to injure the worker's waist, arm, or the like because the worker requires to support weight of the washing machine.

[0011] Moreover, the pedestal has failed in dampening vibration generated when the washing machine is in operation, such that the washing machine and the pedestal vibrate heavily, to generate loud noise.

[0012] Therefore, to cope with this, development of a washing machine pedestal is required, which permits an easy fastening of the washing machine thereto, attenuation of the vibration, and reduction of the noise.

SUMMARY OF THE INVENTION

[0013] Accordingly, the present invention is directed to a washing machine pedestal that substantially obviates one or more of the problems due to limitations and disadvantages

of the related art.

[0014] An object of the present invention is to provide a pedestal which enables convenient, and fast fastening to a washing machine or a laundry dryer.

[0015] Other object of the present invention is to provide a pedestal which can attenuate vibration generated during operation of the washing machine.

[0016] Another object of the present invention is to provide a pedestal which can be used, not only for a washing machine, but also for a laundry dryer.

[0017] Additional features and advantages of the invention will be set forth in the description which follows, and in part will be apparent to those having ordinary skill in the art upon examination of the following or may be learned from practice of the invention. The objectives and other advantages of the invention will be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

[0018] To achieve these objects and other advantages and in accordance with the purpose of the present invention, as embodied and broadly described herein, the pedestal includes a pedestal body for supporting a bottom of a washing machine or a laundry dryer to a height, and at least one coupling means provided both to a side of the washing machine or the laundry dryer and a side of the pedestal body for coupling the washing machine or the laundry dryer with the pedestal body.

[0019] The coupling means includes a coupling member provided both to a side of the washing machine or the laundry dryer, and a side of the pedestal body under the washing machine or the laundry dryer, and fastening members for fastening the coupling member to the side of the washing machine or the laundry dryer and the side of the pedestal body, respectively.

[0020] The fastening member includes first fastening members for fastening an upper part of the coupling member to the side of a lower part of the washing machine or the laundry dryer, and second fastening members for fastening a lower part of the coupling member to the side of an upper part of the pedestal.

[0021] The pedestal body further includes a receiving part for putting things therein.

[0022] The receiving part is a drawer for opening a front part of the pedestal body.

[0023] In other aspect of the present invention, there is provided a pedestal including a pedestal body for supporting a bottom of a washing machine or a laundry dryer to a height, a corner supporting member fitted to a lower corner of the washing machine or the laundry, and coupling means provided to a side of the corner supporting member and a side of the pedestal body for fastening the corner supporting member to the pedestal body.

[0024] The coupling means includes a coupling member in contact with a side of the corner supporting member and a side of the pedestal body, and a fastening member for fastening the coupling member to the side of the washing machine or the laundry dryer and the side of the pedestal body.

[0025] In another aspect of the present invention there is provided a pedestal including a pedestal body for supporting a bottom of a washing machine or a laundry dryer to a height, and leg supporters on top of the pedestal body, for supporting sides of the lower legs of the washing machine or a laundry dryer, and fastening the washing machine or the laundry dryer to the pedestal body.

[0026] The leg supporter includes a first seating hole for seating a leg of the washing machine, and a second seating hole for seating a leg of the laundry dryer.

[0027] The leg supporters are fixed to four points of a top of the pedestal body, wherein the four points are four corners of the top of the pedestal body.

[0028] The first seating hole and the second seating hole are connected to each other in each of the leg supporters fixed to front corners of the pedestal body respectively, and the first seating hole and the second seating hole are separated from each other in each of the leg supporters fixed to rear corners of the pedestal body, respectively.

[0029] The two leg supporters fixed to the front corners of the pedestal body are fastened to support a bottom of a front part of the washing machine.

[0030] Each of the leg supporters fixed to one of the front corners of the pedestal body further includes a supporting part projected forward of the pedestal for supporting a bottom of a front part of the washing machine.

[0031] The two leg supporters fixed to rear corners of the pedestal body are fastened to a lower part of rear side of the washing machine.

[0032] In further aspect of the present invention, there is provided a pedestal including a pedestal body for supporting a bottom of a washing machine or a laundry dryer to a height, leg supporters on top of the pedestal body for supporting sides of lower legs of the washing machine or the laundry dryer, and at least one coupling means at a side of the washing machine or the laundry dryer, and a side of the pedestal body, for coupling the washing machine or the laundry dryer with the pedestal body.

[0033] The leg supporter includes a panel having a first seating hole for seating a washing machine leg, and a second seating hole for seating a laundry dryer leg.

[0034] The leg supporters are fixed to corners of the top of the pedestal body.

[0035] The first seating hole and the second seating hole are connected to each other in each of the leg supporters fixed to front corners of the pedestal body respectively, and the first seating hole and the second seating hole are separated from each other in each of the leg supporters fixed to rear corners of the pedestal body, respectively.

[0036] The coupling means is designed to couple the washing machine or the laundry dryer to the pedestal body according to a height variation of legs of the washing machine or the laundry dryer.

[0037] The fastening member is screw, and the coupling member includes fastening holes at preset intervals from a bottom to a top thereof.

[0038] Thus, the pedestal for a washing machine or a laundry dryer of the present invention permits easy and fast installation of the washing machine or the laundry dryer, to reduce vibration occurred in operation of the washing machine, and to apply not only to the washing machine, but also to the laundry dryer.

[0039] It is to be understood that both the foregoing description and the following detailed description of the present invention are exemplary and explanatory and are intended to provide further explanation of the invention claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0040] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings;

FIGS. 1A and 1B illustrate a disassembled perspective view of a related art drum type washing machine and a pedestal therefor, and a table showing vibrations on a washing machine cabinet, respectively;

FIGS. 2A and 2B illustrate a disassembled perspective view showing coupling a drum type washing machine with a pedestal therefor in accordance with a first preferred embodiment of the present invention, and a table showing vibrations on a washing machine cabinet thereof, respectively;

FIGS. 3A and 3B illustrate a section of coupling means including a gap adjusting member, and a front view of coupling member provided to the coupling means, respectively;

FIGS. 4A and 4B illustrate a disassembled perspective view showing coupling a drum type washing machine with a pedestal therefor in accordance with a second preferred embodiment of the present invention, and a table showing vibrations on a washing machine cabinet thereof, respectively;

FIG. 5 illustrates a disassembled perspective view showing coupling a drum type washing machine with a pedestal therefor in accordance with a third preferred embodiment of the present invention;

FIG. 6 illustrates a disassembled perspective view showing a pedestal in accordance with a fourth preferred embodiment of the present invention;

FIGS. 7A and 7B illustrate a perspective view and a section each showing a coupling part in a pedestal in accordance with a fourth preferred embodiment of the present invention;

FIG. 8 illustrates a disassembled perspective view showing a pedestal in accordance with a fifth preferred embodiment of the present invention;

FIGS. 9A and 9B illustrate sections showing a front coupling part and a rear coupling part in a pedestal in accordance with a fifth preferred embodiment of the present invention, respectively;

FIG. 10 illustrates a perspective view of coupled state of a drum type washing machine with a pedestal therefor in accordance with a sixth preferred embodiment of the present invention; and

FIGS. 11A and 11B illustrate a disassembled perspective view and a section showing a pedestal in accordance with a sixth preferred embodiment of the present invention, and a coupling part therein, respectively.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0041] Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings. In describing the embodiments, same parts will be given the same names and reference symbols, and repetitive description of which will be omitted. FIG. 2A illustrates a disassembled perspective view showing fastening a drum type washing machine to a pedestal therefor in accordance with a first preferred embodiment of the present invention.

[0042] Referring to FIG. 2A, the pedestal includes a body 210 for supporting a bottom of a washing machine to a height, and coupling means 230 for coupling the washing machine with the body 210.

[0043] At least one coupling means 230 is provided to a side of a cabinet of the washing machine and a side of the body of the pedestal. In more detail, the coupling means 230 includes a coupling member 240 in contact both with the side of the washing machine or the dryer, and the side of the pedestal body under the washing machine or the dryer, and fastening members 250 for fastening the coupling member to the side of the washing machine or the dryer and the side of the pedestal body, respectively.

[0044] The coupling member 240 may be an unitary coupling member with a 'L' section to surround three side boundaries of the hexahedral pedestal and the hexahedral washing machine. Or, as shown in FIG. 2, the coupling member 240 may couple sides of the hexahedral pedestal and the hexahedral washing machine at opposite two sides where the hexahedral pedestal and the hexahedral washing machine are in contact. In addition to this, the coupling member 240 may further include a third coupling member (not shown) for coupling rear sides of the pedestal and the washing machine, together.

[0045] It is preferable that the fastening member 250 includes a first fastening

member 251 for fastening an upper part 241 of the coupling member to a lower part of a side of the washing machine or the laundry dryer, and a second fastening member 252 for fastening a lower part 242 of the coupling member to an upper part of a side of the pedestal.

[0046] At least one of the first, or second fastening member may have an adhesive coated on both sides, for an example, double sided tape 251a and 252a. Different from above, at least one of the first fastening member, or the second fastening member may be fastening means, such as a screw 252b, or 252b.

[0047] In the meantime, referring to FIG. 3A, the coupling means 230 may be fabricated to enable to adjust a height of the washing machine or the laundry dryer.

[0048] Referring to FIG. 3A, the coupling means 230 may have a structure which can adjust a height of the washing machine or the laundry dryer.

[0049] To do this, the coupling means 230 includes a coupling member 240 in contact with sides both of the washing machine 100 or the laundry dryer, and the pedestal body 210 under the washing machine 100 or the laundry dryer, fastening members for fastening the coupling member to the sides both of the washing machine 100 or the laundry dryer, and the pedestal body 210, and gap adjusting members 260 for maintaining a space between a bottom of the washing machine 100 or the laundry dryer, and a top of the pedestal body 210 at a preset gap.

[0050] It is preferable that the gap adjusting members 260 include a plurality of members having a variety of thickness for adjusting the height of the washing machine 100 or the laundry dryer to a required height. The gap adjusting member 260 is placed between the bottom of the washing machine or the laundry dryer and the top of the pedestal body in adjustment of the height.

[0051] Moreover, for easy assembly, it is preferable that the gap adjusting member

260 is detachable from the coupling member. The gap adjusting member 260 has one end held at an opening in the middle of the coupling member perpendicular thereto, and rest of the part inserted between the bottom of the washing machine and the top of the pedestal.

[0052] FIG. 2 illustrates a diagram of the pedestal in accordance with a first preferred embodiment of the present invention, wherein both the first fastening member 251, and the second fastening member 252 are the double sided tape pieces 251a, and 252a. FIG. 4 illustrates a diagram of the pedestal in accordance with a second preferred embodiment of the present invention, wherein the first fastening member 251 is the double sided tape 251a, and the second fastening member 252 is a screw 252b.

[0053] Different from this, FIG. 5 illustrates the pedestal in accordance with a third preferred embodiment of the present invention, wherein both the first fastening member and the second fastening member are screws 251a and 251b.

[0054] In a case the first fastening member 251 is screw 251b, as shown in FIG. 3B, the fastening member has fastening holes at regular intervals in the upper part for putting screws therethrough according to a thickness of the gap adjusting member 260 selected from the different thickness of the gap adjusting member 260.

[0055] Though not shown, the coupling member may be adhered with a bond. The pedestal body may include a receiving part, such as a drawer 220, for putting things therein, such as tools for repairing the washing machine, or detergent.

[0056] Tables 1B, 2B, and 4B show vibrations of the cabinet which forms an outer appearance of the washing machine during operation of the washing machine. FIG. 1B illustrates a table showing vibrations of a cabinet for a washing machine having a related art pedestal, FIG. 2B illustrates a table showing vibrations of a cabinet for a washing machine having a pedestal in accordance with a first preferred embodiment of the present invention

coupled thereto, and FIG. 4B illustrates a table showing vibrations of a cabinet for a washing machine having a pedestal in accordance with a second preferred embodiment of the present invention coupled thereto.

[0057] The vibration is measured at a center, top and bottom, and left and right sides of the washing water cabinet 110.

[0058] The tables are compared, to find a more than 50% reduction of vibration of the cabinet 110 from the related art in the first embodiment, and a more than 20% reduction of vibration from the related art in the second embodiment. This is because the coupling member 240 to the pedestal 200 dampens vibration from the washing machine. According to the tables, it is expected that the third embodiment also has a vibration damping effect.

[0059] Though the pedestal is described only in light of washing machine, the pedestal is applicable, not only to the washing machine, but also to any product that requires adjustment of height, such as the laundry dryer.

[0060] A pedestal in accordance with a fourth preferred embodiment of the present invention will be described, with reference to FIG. 6.

[0061] Referring to FIG. 6, the pedestal 300 includes a pedestal body 310 for supporting a bottom of a washing machine 100 or a laundry dryer (not shown) to a height, corner supporting members 320 each fitted to a lower corner of the washing machine or the laundry dryer, and coupling means 330 fastened to a side of the corner supporting member and a side of the pedestal body for fitting the corner supporting member 320 to the pedestal body.

[0062] The corner supporting member 320 is fitted to the lower corner of the washing machine or the laundry dryer with screws (not shown) or double sided tape (not shown).

[0063] The corner supporting member 320 includes a triangular or rectangular

horizontal panel 321, and a vertical bent part 322 bent vertically from one end of the horizontal panel in contact with an upper part of a side of the pedestal body.

[0064] The vertical bent part 322 may be formed at adjoining two vertical sides of the horizontal panel.

[0065] The coupling means 330 includes a coupling member 340 in contact with a side of the corner supporting member and a side of the pedestal body, and fastening members 350 for fastening the coupling member to the side of the washing machine or the laundry dryer, and the side of the pedestal body.

[0066] The fastening member includes a first fastening member 351 for fastening an upper part of the coupling member to a side of the corner supporting member, and a second fastening member 352 for fastening a lower part 342 of the coupling member to an upper part of a side of the pedestal.

[0067] The first fastening member, or the second fastening member is screws 351a, or 352a, and the screw is fastened to the corner supporting member through a through hole (not shown) in the coupling member.

[0068] Referring to FIG. 2, though not shown, the fastening member may be double sided tape having adhesive applied to both sides thereof, and the pedestal body further includes a receiving part, such as a drawer 360, for putting things therein.

[0069] Referring to FIG. 6, reference numeral 140 denotes a leg on a bottom of the washing machine or the laundry dryer, having a threaded upper part 141, and a lower part 142 in contact with a floor or a top of the pedestal body.

[0070] The lower part 142 of the leg may have a circular or square section, and a step between the lower part and the upper part such that a section of the lower part has an area larger than a section of the upper part in which the thread is formed.

[0071] FIGS. 7A and 7B illustrate enlarged detailed view of the foregoing pedestal.

[0072] Referring to FIG. 7A, the corner supporting member 320 includes a horizontal panel 321 having a square with an arc cut away from a corner thereof, and a vertical bent part 322 bent downward from two side of the horizontal panel that form a right angle.

[0073] There is the leg 140 of the washing machine or the laundry dryer in contact with the arc of the horizontal panel 321. The horizontal panel 321 has a bottom supported on the step between the lower part and the upper part of the leg 140.

[0074] Referring to FIGS. 7A and 7B, the coupling member 340 is fastened to the vertical bent part 322 of the corner supporting part, and the side of the upper part of the pedestal body 310 with screws.

[0075] Next, a fifth embodiment of the present invention will be described with reference to FIG. 8.

[0076] Referring to FIG. 8, the pedestal 400 includes a pedestal body 410 for supporting a bottom of a washing machine or a laundry dryer to a height, and leg supporters 420 on the pedestal body for supporting side surfaces of the lower legs, and coupling the washing machine or the laundry dryer with the pedestal body.

[0077] The leg supporter 420 provides a structure for seating the leg of the washing machine or the laundry dryer on the top of the pedestal.

[0078] For this, the leg supporter 420 includes a horizontal panel 421 having a first seating hole 421a for seating the leg 140 of the washing machine, and a second seating hole 421b for seating the leg 150 of the laundry dryer.

[0079] The leg supporters 420 are fitted to the top of the pedestal body as many as a number of legs. The legs, in general four in number, the leg supporters 420 are provided to four points, such as four corners of the pedestal body 410, respectively.

[0080] Referring to FIG. 8, a horizontal panel 421 of the leg supporter at each of the four corners of the top of the pedestal body is fastened with fastening means, such as screws.

[0081] It is preferable that the first seating hole and the second seating hole in each of the two leg supporters at front corners of the pedestal body are connected to each other, and the first seating hole and the second seating hole in each of the two leg supporters at rear corners of the pedestal body are separated from each other, for easy seating of the washing machine legs 140.

[0082] With reference to a diagonal line of a bottom of the washing machine, the first seating hole is positioned on an outer side of the second seating hole, because in general a cabinet of the washing machine is larger than a cabinet of the laundry dryer.

[0083] In the meantime, the leg supporter further includes a vertical bent 422 vertically bent from one end of the horizontal panel 421 having the seating holes formed therein.

[0084] The leg supporter 420 may be fitted to a lower part of a side of the washing machine, or to a corner of the lower part of the washing machine.

[0085] Referring to FIGS. 9A and 9B, each of the two leg supporters 420a and 420b fastened to the front part of the pedestal body 410 further includes a supporting part 423 projected forward from an end of the vertical bent for fastening to a bottom of a front part 111 of the washing machine, for fastening with screws 424 from the bottom of the front part of the washing machine. Of course, double sided tape may be attached between the bottom of the front part of the washing machine and a top surface of the supporting part. To do this, as shown in FIG. 8, a width between front and rear sides of the washing machine is greater than a width between front and rear sides of the pedestal.

[0086] Each of the two leg supporters 420c and 420d fastened to rear part the pedestal

body has the vertical bent 422 fastened to a lower part of rear part of the washing machine with screws 425.

[0087] In this embodiment too, the pedestal body has a receiving part, such as a drawer 430.

[0088] A sixth embodiment of the present invention will be described with reference to FIGS. 10, 11A, and 11B.

[0089] The pedestal 500 includes a pedestal body 510 for supporting a bottom of a washing machine or a laundry dryer to a height, leg supporters 520 on a top of the pedestal body for supporting side surfaces of lower legs of the washing machine or the laundry dryer, and at least one coupling means 530 at sides of the washing machine or the laundry dryer and the pedestal body for coupling the washing machine or the laundry dryer to the pedestal body.

[0090] The leg supporter 520 has a first seating hole 521 for seating the washing machine leg 140, and a second seating hole 522 for seating a laundry dryer leg 150, and is fastened to the top of the pedestal body with fastening means, such as screws.

[0091] The leg supporters 520 are fastened to upper corners of the pedestal body, wherein the first seating hole 521a and the second seating hole 522a in each of the two leg supporters at the front corners of the pedestal body are connected to each other, and the first seating hole 521b and the second seating hole 522b in each of the two leg supporters at the rear corners of the pedestal body are separated from each other, for, as described in the fifth embodiment, easy seating of the washing water legs.

[0092] With reference to a diagonal line on a bottom of the washing machine, the first seating hole 521 is positioned on an outer side of the second seating hole 522, because a cabinet of the washing machine is in general greater than a cabinet of the laundry dryer.

[0093] The coupling means 530 includes a coupling means 540 provided both to side

of the washing machine or the laundry dryer, and a side of the pedestal body, and fastening members 550 for fastening the coupling means to the side of the washing machine or the laundry dryer and the side of the pedestal body.

[0094] The coupling member 540 may be one coupling member (not shown) with a 'L' section to surround three side boundaries of the hexahedral pedestal and the hexahedral washing machine. Or, as shown in FIG. 10, the coupling member 240 may be two or more than two coupling members for coupling the sides of the hexahedral pedestal and the hexahedral washing machine at opposite sides thereof. In addition to this, the coupling member may further include a third coupling member (not shown) for coupling rear sides of the pedestal and the washing machine, together.

[0095] The coupling member may be designed to cope with height variation of the legs of the washing machine 140 or the laundry dryer.

[0096] The fastening member 550 includes first fastening members 551 for fastening an upper part of the coupling member to a lower part of a side of the washing machine or the laundry dryer, and second fastening members 552 for fastening a lower part of the coupling member to an upper part of a side of the pedestal.

[0097] At least one of the first fastening member 551 and the second fastening member 552 may be one having an adhesive material coated on both sides, for an example, double sided tape.

[0098] Different from above, at least one of the first fastening member 551 and the second fastening member 552 may be a fastening means, such as a screw. When the fastening member is screw, it is preferable that the upper part of the coupling member has fastening hole formed at regular intervals.

[0099] In FIGS. 11A and 11B, the first fastening members 551 are double sided tapes

551a, and the second fastening members are screws 552a.

[00100] Though not shown, the coupling member may be bonded with a bond.

[00101] It is preferable that the pedestal body includes a receiving part, such as a drawer 560 for putting things therein.

[00102] Alike the first to third embodiments, in the fourth or fifth embodiment too, vibration occurred when the washing machine is operated can be damped by the leg supporter in the fourth embodiment, or the coupling member in the fifth embodiment.

[00103] The present invention has the following advantages.

[00104] First, installation of the washing machine, or the laundry dryer becomes easy and fast.

[00105] Vibration and noise occurred during operation of the washing machine or the laundry dryer can be reduced.

[00106] Third, a pedestal can be provided, which can be applicable not only to the washing machine, but also to the laundry dryer.

[00107] It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without departing from the spirit or scope of the invention. Thus, it is intended that the present invention cover the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.